Default Value

Lines	Price/sq. ft.
0	$5.00
1,000	$7.50
5,000	$10.00
25,000	$15.00
50,000	$20.00

TRAFFIC PARAMETERS

B92. Local Call Attempts

Definition

The number of yearly local call attempts, as reported to the FCC.

Default Value

Taken from ARMIS reports for the LEC being studied.

B93. Call Completion Fraction

Definition

The percentage of call attempts that result in a completed call. Calls that result in a busy signal, no answer, or network blockage are all considered incomplete.

Default Value

0.7

B94. IntraLATA Calls Completed

Definition

The number of yearly intraLATA call attempts, as reported by the FCC

Default Value

Taken from ARMIS reports for the LEC being studied.

B95. InterLATA Intrastate Calls Completed

Definition

The number of yearly interLATA intrastate call attempts, as reported to the FCC.

Default Value

Taken from ARMIS reports for the LEC being studied.

B96. InterLATA Interstate Calls Completed

Definition

The number of yearly interLATA interstate call attempts, as reported to the FCC

Default Value

Taken from ARMIS reports for the LEC being studied.

B97. Local DEMs, thousands

Definition

The number of yearly local DEMs, as reported to the FCC.

Default Value

Taken from ARMIS reports for the LEC being studied.

B98. Intrastate DEMs, thousands

Definition

The number of yearly intrastate DEMs, as reported to the FCC.

Default Value

Taken from ARMIS reports for the LEC being studied.

B99. Interstate DEMs, thousands

Definition

The number of yearly interstate DEMs, as reported to the FCC.

Default Value

Taken from ARMIS reports for the LEC being studied.

B100. Local bus/res DEMs ratio

Definition

The ratio of local Business DEMs per line to local Residential DEMs per line.

Default Value

1.1

B101. Intrastate bus/res DEMs

Definition

The ratio of intrastate Business DEMs per line to intrastate Residential DEMs per line.

Default Value

2

B102. Interstate bushes DEMs

Definition

The ratio of interstate Business DEMs per line to interstate Residential DEMs per line.

Default Value

3

B103. Busy hour fraction of daily usage

Definition

The percentage of daily usage that occurs during the busy hour

Default Value

0.10

B104. Annual to daily usage reduction factor

Definition

The effective number of business days in a year, used to concentrate annual usage into a fewer number of days as a step in determining busy hour usage.

Default Value

270

B105. Holding time multipliers, residential/business

Definition

The potential modification to the average call "holding time" (i.e., duration) to reflect Internet use or other causes, expressed as a multiplier of the holding time associated with ordinary residential or business telephone calls.

Default Value

Holding time multipliers	
Residential	Business
1.0	1.0

B106. Call attempts, Busy Hour (BHCA), residential/business

Definition

The number of call attempts originated per residential and business subscriber during the busy hour

Default Value

Busy Hour Call Attempts	
Residential	Business
1.3	3.5

INTEROFFICE INVESTMENT

B107. Transmission Terminal Investment

Definition

The investment in 1) the fully-equipped add-drop multiplexer (ADM) that extracts/inserts signals into OC-48 or OC-3 fiber rings, and are needed in each wire center to connect the wire center to the interoffice fiber ring; and 2) the fully-equipped OC-3/DS-1 terminal multiplexers required to interface to the OC-48 ADM and to provide point to point circuits between on-ring wire centers and end offices not connected directly to a fiber ring. The "Investment per 7 DS-1" figure is the amount by which the investment in OC-3s is reduced for each unit of 7 DS- 1 s below full capacity of the OC-3.

Default Value

Transmission Terminal Investment			
OC-48 ADM, Installed		OC-3/DS-1 ADM/Terminal Multiplexer, Installed	Investment per 7 DS-1 s
48 DS-3s	12 DS-3s	84 DS-1 s	7 DS-1s
$50,000	$40,000	$26,000	$500

B108. Number of fibers

Definition

The assumed fiber cross-section, or number of fibers in a cable, in an interoffice fiber ring and point to point connection.

Default Value

24

B109. Pigtail Investment

Definition

The cost of the short fiber connectors that attach the interoffice ring fibers to the wire center transmission equipment via a patch panel.

Default Value

$60.00 per pigtail

B110. Optical Distribution Panel

Definition

The cost of the physical fiber patch panel used to connect 24 fibers to the transmission equipment.

Default Value

$1,000.00

B111. EF&I, per hour

Definition

The per-hour cost for the "engineered, furnished, and installed" activities for equipment in each wire center associated with the interoffice fiber ring, such as the "pigtails" and patch panels to which the transmission equipment is connected.

Default Value

$55.00

B112. EF&I, units

Definition

The number of hours required to install the equipment associated with the interoffice transmission system (see EF&I, per hour, above).

Default Value

32 hours

B113. Regenerator investment, installed

Definition

The installed cost of an OC-48 optical regenerator.

Default Value

$15,000

B114. Regenerator spacing, miles

Definition

The distance between digital signal regenerators in the interoffice fiber optics transmission system.

Default Value

40 miles

B115. Channel Bank Investment, per 24 lines

Definition

The investment in voice grade to DS-I multiplexers in wire centers required for some special access circuits.

Default Value

$5,000

B116. Fraction of SA Lines Requiring Multiplexing

Definition

The percentage of special access circuits that require DS-0 to DS-1 multiplexing in the wire center in order to be carried on the interoffice transmission system. This parameter is for use in conjunction with a study of the cost of special access circuits.

Default Value

0.0

B117. Digital Cross Connect System, Installed, per DS-3

Definition

The investment required for a digital cross connect system that interfaces DS- 1 signals between switches and OC-3 multiplexers, expressed on a per DS-3 basis (672 DS-0).

Default Value

$30,000

B118. Transmission Terminal Fill (DS-0 level)

Definition

The fraction of maximum DS-0 circuit capacity that can actually be utilized in ADMs, DS-I to OC-3 multiplexers, and channel banks.

Default Value

0.90

B119. Interoffice Fiber Cable investment per foot, installed

Definition

The installed cost per foot of interoffice fiber cable, assuming a 24-fiber cable.

Default Value

$3.50 installed and buried

B120. Number of Strands per ADM

Definition

The number of interoffice fiber strands connected to the ADM in each wire center. At least four strands per ADM are required around the ring.

Default Value

4

B121. Interoffice Structure Percentages

Definition

The relative amounts of different structure types supporting interoffice transmission facilities. Aerial cable is attached to telephone poles or buildings, buried cable is laid directly in the earth, and underground cable runs through underground conduit. Aerial and buried percentages are entered by the user; the underground fraction is then computed.

Default Values

Structure Percentages		
Aerial	Buried	Underground
20%	60%	20%

B122. Transport Placement

Definition

The cost of placement of fiber cable used in the interoffice transmission system

Default Values

Transport Placement, per foot	
Buried	Conduit
$1.77	$16.40

B123. Buried Sheath Addition

Definition

The cost of dual sheathing for additional mechanical protection of fiber interoffice transport cable.

Default Value

$0.20/foot

B124. Interoffice conduit, cost and number of tubes

Definition

The cost per foot for interoffice fiber cable conduit, and the number of spare tubes (conduit) placed per

route.

Default Values

Cost per foot	Spare tubes per route
$0.60	1

B125. Pullbox Spacing

Definition

Spacing between pullboxes in the interoffice portion of the network.

Default Value

2,000 feet

B126. Pullbox Investment

Definition

Investment per fiber pullbox in the interoffice portion of the network.

Default Value

$500

B127. Pole Spacing, Interoffice

Definition

Spacing between poles supporting aerial interoffice fiber cable.

Default Value

150 feet

B128. Interoffice pole material and labor

Definition

The installed cost of a 40' Class 4 treated southern pine pole.

Default Value

Pole Investment	
~~Materials~~	~~$201~~
Labor	$216
Total	*$417*

B129. Fraction Interoffice Structure Common With Feeder

Definition

The percentage of structure supporting interoffice transport facilities that is also shared by feeder facilities. expressed as a fraction of the smaller of the interoffice and feeder investment for each of the three types of facilities (i.e., aerial, buried and underground are considered separately in calculating the amount of sharing).

Default

0.75

B130. Fraction of interoffice structure assigned to telephone

Definition

The fraction of investment in interoffice poles and trenching that is assigned to LECs. The remainder is attributed to other utilities/carriers

Default Value

Fraction of Interoffice Structure Assigned to Telephone		
Aerial	**Buried**	**Underground**
0.33	0.33	0.33

TRANSMISSION PARAMETERS

B131. Operator traffic fraction

Definition

Fraction of traffic that requires operator assistance. This assistance can be automated or manual (see Operator Intervention Fraction in the Operator Systems section below)

Default

0.02

B132. Total interoffice traffic fraction

Definition

The fraction of all calls that are completed on a switch other than the originating switch, as opposed to calls completed within a single switch.

Default

0.65

B133. Maximum trunk occupancy, CCS

Definition

The maximum utilization of a trunk during the busy hour.

Default

27.5

B134. Trunk port investment, per end

Definition

Per-trunk equivalent investment in switch trunk port at each end of a trunk.

Default

$100

B135. Direct-routed fraction of local inter-office

Definition

The amount of local interoffice traffic that is directly routed between originating and terminating end offices as opposed to being routed via a tandem switch.

Default

0.98

B136. Tandem routed fraction of total intraLATA traffic

Definition

Fraction of intraLATA calls that are routed through a tandem.

Default

0.2

B137. Tandem routed fraction of total interLATA traffic

Definition

Fraction of interLATA (IXC access) calls that are routed through a tandem instead of directly to the IXC.

Default

0.2

B138. POPs per Tandem Location

Definition

The number of IXC points of presence requiring an entrance facility, per LEC tandem.

Default

5

B139. Threshold value for off-ring wire centers

Definition

The treshold value, in lines, that determines whether a wire center should be included in ring calculations and therefore be a candidate to appear on (that is, be directly connected to) a ring. Wire centers whose size falls below the threshold will not be appear on a ring, but will be connected via a point-point link to the tandem switch or via a "spur" to the nearest wire center that is on a ring. Transmission equipment in such cases consists of terminal multiplexers and not ADMs. This parameter only applies to companies that own and operate a local tandem switch.

Default

1 line

B140. Remote - host fraction of interoffice traffic

Definition

Fraction of local direct traffic assumed to flow from a remote to its host switch.

Default

0.10

B141. Host - remote fraction of interoffice traffic

Definition

Fraction of local direct traffic assumed to flow from a host to its remotes.

Default

0.05

B142. Maximum nodes per ring

Definition

Maximum number of ADMs that are permitted on a single ring.

Default

16

B142a. Ring transiting traffic factor

Definition

An estimated factor, representing the fraction of traffic that flows from one ring to another by way of a third, or "transit," ring.

Default

0.40

B142b. Intertandem fraction of tandem trunks

Definition

A factor used to estimate the number of additional trunks required to carry intertandem traffic

Default

0.10

TANDEM SWITCHING

B143. Real time limit, BHCA

Definition

The maximum number of BHCA a tandem switch can process.

Default

750,000

B144. Port limit, trunks

Definition

The maximum number of trunks that can be terminated on a tandem switch.

Default

100,000

B145. Tandem common equipment investment

Definition

The amount of investment in tandem switch common equipment, which is the hardware and software that is present in the tandem in addition to the trunk terminations themselves. The cost of a tandem is estimated by the HM as the cost of common equipment plus an investment per trunk terminated on the tandem.

Default

$1 ,000,000

B146. Maximum trunk fill (port occupancy)

Definition

The fraction of the maximum number of trunk ports on a tandem switch that can be utilized.

Default

0.90

B147. Maximum real time tandem occupancy

Definition

The fraction of the total capacity (expresses as the real time limit, BHCA) a tandem switch is allowed to carry before an additional switch is provided.

Default

0.90

B148. Tandem common equipment intercept factor

Definition

The multiplier of the common equipment investment input that gives the common equipment cost for the smallest tandem switch, allowing scaling of tandem switching investment according to trunk requirements

Default

0.50

B149. Entrance Facility Distance from Serving Wire Center & IXC POP

Definition

Average length of trunks connecting an IXC with the wire center that serves it.

Default

0.5 miles

SIGNALING

B150. STP link capacity

Definition

The maximum number of signaling links that can be terminated on a given STP pair.

Default Value

720

B151. STP maximum fill

Definition

The fraction of maximum links, as stated by the STP link capacity input, that the model assumes can be utilized before it adds another STP pair.

Default Value

0.80

B152. STP maximum common equipment investment, per pair

Definition

The cost to purchase and install an STP pair, fully equipped for the maximum number of links.

Default Value

Maximum investment: $5,000,000

B153. STP minimum common equipment investment, per pair

Definition

The minimum investment for a minimum-capacity STP, i.e.: the fixed investment for an STP pair that serves a minimum number of links.

Default Value

$ 1,000,000

B154. Link termination, both ends

Definition

The investment required for the transmission equipment that terminates both ends of an SS7 signaling link.

Default Value

$900.00

B155. Signaling link bit rate

Definition

The rate at which bits are transmitted over an SS7 signaling link.

Default Value

56,000 bits per second

B156. Link occupancy

Definition

The fraction of the maximum bit rate that can be sustained on an SS7 signaling link.

Default Value

0.40

B157. C link cross-section

Definition

The number of C-links in each segment connecting a mated STP pair.

Default Value

24

B158. ISUP messages per interoffice BHCA

Definition

The number of Integrated Services Digital Network User Part (ISUP) messages associated with each interoffice telephone call attempt, i.e. the messages switches send to each other over the SS7 network to negotiate establishing a voice path.

Default Value

6

B159. ISUP message length, bytes

Definition

The average number of bytes in each ISUP (ISDN User Part) message.

Default Value

25 bytes

B160. TCAP messages per transaction

Definition

The number of Transaction Capabilities Application Part (TCAP) messages required per SCP database query. A TCAP message is a message from a switch to a database or another switch that provides the switch with additional information prior to setting up a call or completing a call.

Default Value

2

B161. TCAP message length, bytes

Definition

The average length of a TCAP message.

Default Value

100 bytes

B162. Fraction of BHCA requiring TCAP

Definition

The percentage of BHCAs that require a database query, and thus generate TCAP messages.

Default Value

0.10

B163. SCP investment per transaction per second

Definition

The investment in the Service Control Point (SCP) associated with database queries, or transactions, stated as the investment required per transaction per second. For example, an SCP required to handle 100 transactions per second would require a 2 million dollar investment, if the default of $20,000 is assumed.

Default Value

$20,000

OS AND PUBLIC TELEPHONE

B164. Investment per operator position

Definition

The investment per computer required for each operator position.

Default Value

$6,400

B165. Maximum utilization per position, CCS

Definition

The estimated maximum number of CCS that one operator position can handle during the busy hour.

Default Value

32

B166. Operator intervention factor

Definition

The percentage of all operator-assisted calls that require operator intervention, expressed as 1 out of every N calls, where N is the value of the input.

Default Value

10

B167. Public Telephone equipment investment per station

Definition

The weighted average cost of a public telephone and pedestal (coin/non-coin and indoor/outdoor).

Default Value

$760

ICO PARAMETERS

B168. ICO STP Investment per Line

Definition

The surrogate value for the per line investment in a signal transfer point by an independent telephone company (ICO), in lieu of calculating it directly in the model.

Default Value

$5.50

B169. Per Line ICO Local Tandem Investment

Definition

The surrogate value for the per line investment in a local tandem switch by an independent telephone company (ICO), in lieu of calculating it directly in the model.

Default Value

$1.90

B170. Per Line ICO OS Tandem Investment

Definition

The surrogate value for the per line investment in an Operator Services tandem switch by an independent telephone company (ICO), in lieu of calculating it directly in the model.

Default Value

$0.80

B171. Per Line ICO SCP Investment

Definition

The surrogate value for the per line investment in a SCP by an independent telephone company (ICO), in lieu of calculating it directly in the model.

Default Value

$2.50

B172. Per Line ICO STP/SCP Wire Center Investment

Definition

The surrogate value for the per line investment in an STP/SCP wire center by an independent telephone company (ICO), in lieu of calculating it directly in the model.

Default Value

$0.40

B173. Per Line ICO Local Tandem Wire Center Investment

Definition

The surrogate value for the per line investment in a local tandem wire center by an independent telephone company (ICO), in lieu of calculating it directly in the model.

Default Value

$2.50

B174. Per Line ICO OS Tandem Wire Center Investment

Definition

The surrogate value for the per line investment in a operator services tandem wire center by an independent telephone company (ICO), in lieu of calculating it directly in the model.

Default Value

$1 .oo

B175. Per Line ICO C-Link / Tandem A-Link Investment

Definition

The surrogate value for the per line investment in a C-link /tandem A-link by an independent telephone company (ICO), in lieu of calculating it directly in the model.

Default Value

$0.30

B175a. Equivalent Facility Investment per DSO

Definition

The per-DSO surrogate facilities investment by a small ICO for dedicated circuits between an end office and tandem switch belonging to the BOC (or other large LEC) on which the ICO relies for interoffice connectivity.

Default Value

$138.08

B175b. Equivalent Terminal Investment per DSO

Definition

The per-DSO surrogate investment by a small ICO for terminal equipment used on dedicated circuits between an end office and tandem switch belonging to the BOC (or other large LEC) on which the ICO relies for interoffice connectivity.

Default Value

$111.62

HOST / REMOTE ASSIGNMENT

B176. Host / remote CLLI assignments

Definition

An input form consisting of parameters that allow the user to specify the set of host and remote wire centers, and establish the relationships between remotes and their serving host, using the CLLI codes of the respective switches. In the default mode, HM 5.0a assumes all switches operate independently, and thus does not include host/remote designations or relationships.

Default Value

Default settings do not define hosts or remotes.

B177. Host / remote assignment enable

Definition

An option that, if enabled, instructs the model to perform switching calculations based on the host-remote relationships defined by Parameter 4.10.1.

Default Value

Default setting is disabled.

HOST / REMOTE INVESTMENT

B177a. Line Size Designation

Definition

The line size designation of fixed and per line investments for standalone, host, and remote switches.

Default Value

Line Size
0
640
5,000
10,000

B177b. Fixed and per Line Investments

Definition

The fixed and per line investments included in the function that calculates the per line switching investment as a function of switch line size for host, remote, and stand alone switches, expressed separately for BOCs and large independents and for small independents. The cost function for each type of switch and each type of telephone company is assumed to have the form A + B * x, where A is the fixed investment, B is the per-line investment, and x is the number of lines.

Default Value

Fixed and per Line Investments for Standalone, Host and Remote Switches

BOCs and Large ICOs

Line Size	Standalone fixed investment	Host fixed investment	Remote fixed investment	Standalone per line investment	Host per line investment	Remote per line investment
0	$175,000	$183,750	$10,000	$75	$75	$85
640	$175,000	$183,750	$55,000	$75	$75	$83
5,000	$175,000	$183,750	$70,000	$75	$75	$85
10,000	$475,000	$498,750	$225,000	$73	$73	$70

Small ICOs

Line Size	Standalone fixed investment	Host fixed investment	Remote fixed investment	Standalone per line investment	Host per line investment	Remote per line investmen
0	$300,001	$315,001	$17,143	$129	$129	$146
640	$300,001	$315,001	$94,286	$129	$129	$141
5,000	$300,001	$315,001	$120,000	$129	$129	$146
10,000	$814,289	$855,003	$385,716	$124	$124	$120

EXPENSE

COST OF CAPITAL

B178. Cost of capital

Definition

The capital cost structure, including the debt/equity ratio, cost of debt, and return on equity, that makes up the overall cost of capital.

Default Values

Debt percent	0.450
Cost of debt	0.077
Cost of equity	0.119
Weighted average cost of capital	0.1001

DEPRECIATION AND NET SALVAGE

B179. Depreciation Lives and Net Salvage Percentages

Definition

The economic life and net salvage value of various network plant categories.

Default Value

Plant Type	Economic Life	Net Salvage %
motor vehicles	8.24	11.21
garage work equipment	12.22	-10.71
other work equipment	13.04	3.21
buildings	46.93	1.87
urniture	15.92	6.88
office support equipment	10.78	6.91
company comm. Equipment	7.40	3.76
general purpose computers	6.12	3.73
digital electronic switching	16.17	2.97
operator systems	9.41	-0.82
digital circuit equipment	10.24	-1.69
public telephone term. Equipment	7.60	7.97
Poles	30.25	-89.98
aerial cable, metallic	20.61	-23.03
aerial cable, non metallic	26.14	-17.53
underground cable, metallic	25.00	-18.26
underground cable, non metallic	26.45	-14.58
buried cable, metallic	21.57	-8.39
buried cable, non metallic	25.91	-8.58
intrabuilding cable, metallic	18.18	-15.74
intrabuilding cable, non metallic	26.11	-10.52
conduit systems	56.19	-10.34

EXPENSE ASIGNMENT

B179a. Expense Assignment

Definition

The fraction of certain categories of indirect expenses, including the **loop** component of general support, as well as network operations, other taxes, and variable overhead, that are assigned to loop UNEs (distribution, concentrator, feeder and NID), and thus to universal service, on a per-line basis, rather than the default assignment based on the relative proportions of the direct costs associated with these UNEs.

Default Value

Expense Assignment	Percent to be assigned per line
General Support Loops	
Furniture – Capital Costs	0%
Furniture – Expenses	0%
Office Equipment – Capital Costs	0%
Office Equipment – Expenses	0%
General Purpose Computer – Capital Costs	0%
General Purpose Computer – Expenses	0%
Motor Vehicles – Capital Costs	0%
Motor Vehicles – Expenses	0%
Buildings – Capital Costs	0%
Buildings – Expenses	0%
Garage Work Equipment – Capital Costs	0%
Garage Work Equipment – Expenses	0%
Other Work Equipment – Capital Costs	0%
Other Work Equipment – Expenses	0%
Network Operations	0%
Other Taxes	0%
Variable Overhead	0%

STRUCTURE FRACTION ASSIGNED TO TELEPHONE

B180. Structure Percentage Assigned to Telephone Company

Definition

The fraction of investment in distribution and feeder poles and trenching that is assigned to LECs. The remainder is attributed to other utilities/carriers.

Default Values

Structure Percent Assigned to Telephone Company						
	Distribution			Feeder		
Density Zone	Aerial	Buried	Underground	Aerial	Buried	Underground
0-5	.50	.33	1.00	.50	.40	SO
5-100	.33	.33	.50	.33	.40	.50
100-200	.25	.33	.50	.25	.40	.40
200-650	.25	.33	.50	.25	.40	.33
650-850	.25	.33	.40	.25	.40	.33
850-2,550	.25	.33	.33	.25	.40	.33
2,550-5,000	.25	.33	.33	.25	.40	.33
5,000-10,000	.25	.33	.33	.25	.40	.33
10,000+	.25	.33	.33	.25	.40	.33

OTHER

B181. Income tax rate

Definition

The combined federal and state income tax rate on earnings paid by a telephone company

Default Value

39.25%

B182. Variable overhead factor

Definition

Forward-looking corporate overhead costs, expressed as a fraction of the sum of all capital costs and operations expenses calculated by the model.

Default Value

10.4%

B183. Other taxes factor

Definition

Operating taxes (primarily gross receipts and property taxes) paid by a telephone company in addition to federal and state income taxes.

Default Value

5%

B184. Billing/hill inquiry per line per month

Definition

The cost of bill generation and billing inquiries for end users, expressed as an amount per line per month.

Default Value

$1.22

B185. Directory listing per line per month

Definition

The monthly cost of creating and maintaining white pages listings on a per line, per month basis that is to be eligible for universal service support.

Default Value

$0.00

B186. Forward-looking network operations factor

Definition

The forward-looking factor applied to a specific category of expenses reported in ARMIS called Network Operations. The factor is expressed as the percentage of current ARMIS-reported Network Operations.

Default Value

50%

B187. Alternative Central office switching expense factor

Definition

The expense to investment ratio for digital switching equipment, used as an alternative to the ARMIS expense ratio, reflecting forward looking rather than embedded costs. Thus, this factor multiplies the calculated investment in digital switching in order to determine the monthly expense associated with digital switching. This factor is not intended to capture the cost of software upgrades to the switch, as all switching software is part of the capital value inputs to HM 5.0a.

Default Value

2.69%

B188. Alternative circuit equipment factor

Definition

The expense to investment ratio for all circuit equipment (as categorized by LECs in their ARMIS reports), used as an alternative to the ARMIS expense ratio to reflect forward looking rather than embedded costs.

Default Value

0.0153